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GENEVA IN THE UTAH ECONOMY:
Retrospect and Prospect

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Starting in the 1850s, repeated attempts have been made to create a viable iron and steel industry in Utah. Then in 1944, the federal government delivered to the site of the Geneva resort on the shores of Utah Lake, what was then the most modern integrated basic steel plant in the nation. Now the prospects are for abandonment of that Geneva Plant, which has been a mainstay of the Utah County economy for the intervening years. Under the conditions prevailing in the world, the nation and the state, is there any reasonable prospect of continuing a viable steel industry in Utah? If not, what will be the impact of the closure on the economies of Utah County and the State of Utah? These are the two questions this article addresses.

Location has been both the reason and the handicap for steel production in Utah. There have been experiments with iron and steel production from the advent of the first settlers because the raw materials were here in abundance. But there has never been an adequate market to support an integrated mill – only in partnership with a California facility has a Utah plant been viable. Now a Korean firm, Pohang Steel Company, has become the alienator of affections in that otherwise happy marriage. One of several paradoxes involved is that a plant created because of the Japanese is being threatened by the Koreans.

Even as part of a bi-state alliance, the Geneva Plant has survived only because of the extraordinary efforts and dedication of its local management and employees. Throughout the plant's short history the direct threats to its existence have emanated from a skeptical corporate management which now appears to have rung its death knell. They appear to perceive their obligation to their stockholders to be superior to and in conflict with their obligations to Utah employees and communities and even to the steel industry.

Utah's steel industry can be understood only in its historical perspective. It is also only a small component of a larger U.S. industry which is a shrinking component of the world steel picture. This paper briefly traces the history of steelmaking in Utah, and then examines the status of the U.S. industry, bufferted as it is by international forces. The role of the Geneva Works in the economy of Utah County and the state is then examined and an estimate made of the impact of possible closure. Exploring the most realistic alternatives for the Geneva Plant and for Utah steel production completes the report.

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Utah's Steel Industry

Utah's early settlers struggled from 1852 to produce iron at a cost below that involved in importation from the East.[1] They were never successful because of a combination of primitive technology and primitive conditions. No success would be claimed until a short-lived open hearth was established at Midvale during the First World War.

Ironton Plant

A continuous history of steelmaking in Utah must begin with the Ironton Plant of Columbia Steel Company established near Provo in 1924. That plant not only highlighted Utah's advantage in raw material supplies, but also demonstrated what is still the key limitation on Utah's steel industry – the lack of an adequate market. The plant's coke ovens and blast furnace used Utah iron ore and coal to produce pig iron but then sold most of its product to West Coast steel mills and foundries. Local users, including the Pacific States Cast Iron Pipe Company, which was established nearby in 1926, were too few to offer the necessary economies of scale to the plant which produced 600 tons of metallurgical coke and 550 tons of pig iron per day.

Utah's steel consumption might have ultimately grown sufficiently to absorb Ironton's output. However, it was still necessary to send the iron to the West Coast for processing to return steel to Utah. No intermountain market existed sufficient to attract investment in steelmaking facilities.

Geneva Plant

The Second World War brought booming demand from West Coast shipyards accompanied by fears of the Panama Canal being blocked. Utah not only had all of the constituent raw materials, it had manpower and was at the confluence of rail transportation to all of the major West Coast cities. Cost was not a significant deterrent in wartime. Hence, the most modern steel plant in the country was built in Utah County between 1942 and 1944 at a cost of over $200 million.

The plant commenced production in February 1944 but ceased with the defeat of Japan in 1945. The Geneva Plant and related facilities were offered for sale by the federal government in 1946. Interest was limited but the intervention of the President Harry S. Truman under the urging of the totally Democratic state congressional delegation finally resulted in six bids. The most attractive bid was that of United States Steel Corporation, the firm which had built and operated the plant for the Defense Plant Corporation.

The Geneva Plant was sold to U.S. Steel in 1947 for $47.5 million plus the commitment to invest at least $18.6 million in converting the plant to peacetime operation. The original complement purchased by U.S. Steel consisted of three blast furnaces, 252 by-product coke ovens, nine open hearths, slabbing and blooming mills, a plate mill and a structural mill, along with coal mines, a limestone quarry and an iron mine. The capacity at the time was approximately 1.1 million tons of pig iron and 1.28 million tons of steel ingots per year.

Geneva's products at the time of sale were limited to plate and structural steel for the shipbuilding industry; but, with the surplus of ships created for the war in the Pacific, there was no western postwar market from that industry. During 1947 and 1948, the 132-inch plate mill was remodeled to add lighter gauge flat-rolled coils. These were shipped to the U.S. Steel plant at Pittsburg, California (known in the industry as Pitt-Cal) for further finishing as cold-rolled sheets and tin plate. Therein lies the key point to this historical recital: never except during the brief period of wartime production was it useful to think of the Geneva plant as an independent unit. Its survival has always depended upon the linkage to its California partner – the finishing unit that lies within and services the bulk of their joint market.

With the Korean War demands, a tenth open hearth was added at Geneva. In 1952 a pipemill was constructed to service the oil industry and other needs. In 1957, seven of the ten open hearth furnaces were rebuilt to incorporate the oxygen lance process, increasing the intensity and reducing the time required to process a furnace charge. A coal chemical division was added to produce a variety of by-products from previously discarded coke-oven gases. Subsequent investment concentrated on product improvements in the rolling mill. With these and other improvements, the plant's rated capacity doubled to two-and-a-half million tons annually. That total capacity was limited at the finishing end of the mill which could never absorb the full capacity of the steelmaking end.

Continued expenditures were needed for maintenance. Soon water and air pollution control became a major expense item. All of these and the 700 to 1,000 miles between Geneva and its major markets on the West Coast kept the plant marginal in corporate eyes. The Mountain States never absorbed more than 20 percent of the plant's output. By the 1960s, Japanese steel was becoming a major competitive factor in the Western market with South Korea adding to the competition by the end of the 1970s. Even steel from Europe and the Eastern United States could pass through the Panama Canal to compete with steel from Geneva.

Perhaps for those reasons, the U.S. Steel Corporation never chose to introduce at Geneva major cost-saving technological developments which were rocking the industry worldwide. The national impact of these basic oxygen furnaces, electric furnaces, continuous casters, direct iron ore reduction and the steel mini-mill are discussed later. Without these, what had been the most modern mill in the nation in 1944 was one of the most outdated by 1985. As output fell with reduced demand, some routine maintenance could be delayed, allowing some parts of the plant in essence to consume themselves.

Yet by extraordinary effort, along with computerization of some aspects of production, local management and employees kept up productivity efforts begun in their "errors zero" campaign in the 1960s.[2] Between 1981 and 1985, while the national industry was reducing the number of hours of labor required for a ton of steel from 8 to 6.5, the Geneva-Pittsburg combination was shrinking its labor requirement from 9.2 hours to 4.6 hours per ton.[3]

Employment at Geneva

Much of Geneva's history can be read through the record of U.S. Steel employment in Utah (Table 1). Production began with 1,500 employees in 1944. Including the Iron County iron ore mine, three Carbon County coal mines, the Ironton Plant and the limestone quarry in Utah County, total employment exceeded 4,000 before shutdown in 1946. After resumption, employment rose steadily except for cyclical fluctuations until 1960. Exhaustion of the Utah iron mines led to transfer of that operation to Wyoming, not reducing total Geneva-related employment but cutting the numbers employed in Utah.

Table 1
Approximate Employment of U.S. Steel Worksites in Utah, First Quarter Selected Years, 1945 to 1985

Year	Employment[a]
1945	4,100
1950	4,800
1955	6,900
1960	7,500
1965	6,100
1970	4,500
1976	4,700[b]
1980	5,100
1981	5,200
1982	3,100
1983	2,900
1984	2,700
1985	2,500
1986 (March)	2,200

[a]Rounded

[b]1975 not available

Source: 1945-85 estimates from Utah Department of Employment Security, Labor Market Information Service; 1986 estimate from company sources.

Only with foreign competition following 1970 was there a secular decline in the total jobs related to the plant. Colorado and Arkansas coals mixed with Utah coals had always been necessary for proper coking. One by one the Columbia, Horse Canyon and Geneva mines in Carbon County were idled; until by 1982, all of the coking coal was being brought in from out-of-state. The Wyoming ore mines ceased production in 1983 with ore shipped from Minnesota to Utah thereafter.[4]

By the end of the 1970s, 45 percent of the steel consumed in the western states was from foreign sources[5] and by 1985 that figure had reached 65 percent for the West Coast, though imports comprised only 26 percent of steel consumption nationally.[6] Following the 1981-82 recession, some of the blast furnaces, coke ovens and open hearths were idled with consequent layoffs never to be recalled.[7] Rumors of Geneva's closing had been persistent since the 1960s. The corporation's public relations announcements consistently reassured that Geneva

was permanent, [8] except during air pollution negotiations in the late 1970s when threat of closure proved to be an effective bargaining tool with the community and the federal government.[9] Internally, however, local management was continually challenged that only extraordinary efforts at productivity and profit would win modernizing investments, maintenance expenditures and survival.

Closure rumors intensified during the fall of 1985.[10] Then at Christmas time the Sword of Damocles fell.[11] United States Steel and Pohang Steel of South Korea reached an agreement involving only U.S. Steel's Pittsburg, California plant but posing a dire threat to Geneva. Pohang and U.S. Steel together would invest $300 million to modernize and expand Pitt-Cal. Then in 1989, after the current voluntary import quotas on steel expire, Pitt-Cal would begin importing Korean steel to replace that currently coming from Geneva. With Pitt-Cal currently absorbing 70 percent of Geneva's output, no alternative market was apparent to absorb sufficient steel to make operation of the Geneva plant feasible. All of the signs were that Geneva had four years or less to live.

The Nucor Mini-Mill

However, by 1985, Geneva was not the only steel game in Utah. The mini-mill movement spreading across the nation had reached the small town of Plymouth in Box Elder County. Nucor, a highly successful company with plants already in South Carolina, Nebraska and Texas, had located in Utah, not in spite of but because of the distance to market. Since a mini-mill melts scrap rather than processing coal, iron ore and limestone, the availability of those raw materials was irrelevant. Nucor's corporate policy considered an 800-mile radius to be a reasonable distance for truck transportation of its product. An arc to the west of roughly that distance could encompass the entire West Coast while at the same time blanketing the entire Mountain West and intersecting to the East the arc of its Nebraska plant. Based on that strategy, Nucor invested $110 million, one-third of it in pollution control equipment and the rest in production facilities. Employing only 300 and with an annual output of less than 400,000 tons of product destined primarily for the construction industry, Nucor was no replacement for Geneva. But its advent and Geneva's threatened demise were both indicators of the problems and the future direction of the steel industry nationally.

The Troubled World Steel Industry

It is of no comfort to Utahns that Utah's steel trauma is but a piece of what is being experienced by all steelmaking countries. However, the problems and prospects of the Geneva Works cannot be understood without some familiarity with the conditions and trends of the steel industry in the United States and the world.

Overcapacity

The critical fact is overcapacity. The U.S. is unique among steelmaking nations, being the only one having a production capacity only slightly greater than its consumption (Table 2). The steelmaking technology is characterized by immense economies of scale. Production costs rise dramatically as capacity utilization declines. At the same time, steel companies have high fixed costs which continue regardless of their output. Hence all other steelmakers but the U.S. must export to survive and will do so even if their selling price is below their production costs. In fact, the U.S. industry tends to have lower fixed costs because its companies have the freedom to lay off unneeded employees, whereas in competing countries labor, because of either governmental policies as in Europe or tradition and company practices as in Japan, tends to be a fixed cost as well as capital.

Add to that the pressures on less developed countries to undertake steel production. Steel is the single most used intermediate product in the creation of industrial capacity. Any nation with industrial ambitions but without steelmaking capacity will be confronted with a substantial drain on its balance of payments. Incentives are strong to invest in steelmaking capacity. Yet the economies of scale are such that a small, low income society cannot absorb the output of an efficient steel facility. Hence, the developing country beginning its investment in steel will be forced to export, even if at a price which does not cover its total costs.

Brazil and South Korea are now setting out on the path blazed by Japan 25 years ago and Mexico, Taiwan, India and Malaysia are future possibilities. Steel overcapacity is now a fact of life. The old line producers in North America and Europe are attempting to shrink their output in response to demand conditions but the less developed countries have strong incentives to increase theirs. As the world's

Table 2
Capacity vs. Consumption
(millions of metric tons)

	Crude Steel Capacity			Apparent Steel Consumption (crude steel equivalent)		
	Avg. 1969-70	Avg. 1979-80	Annual Rate of Growth	Annual Rate of Growth	Avg. 1969-70	Avg. 1979-80
Belgium, Luxemburg	19.9	26.8	3.0	–1.6	4.56	3.89
France	25.2	32.3	2.5	–0.6	23.00	21.69
Germany	49.7	68.7	3.3	–0.5	40.98	39.08
Italy	19.5	37.2	6.7	3.0	20.21	27.25
United Kingdom[a]	29.1	28.7	–0.2	–2.1	24.98	20.65
Japan	81.0	156.9	6.8	2.4	67.15	84.90
U.S.	140.5	140.1	–	–0.1	132.95	131.14

[a]Calculation made for 1978-79 to eliminate effects of 1980 strike.

Source: U.N. statistics for capacity, OECD statistics for apparent consumption.

Table 3
Hourly Employment Costs for All Steel Industry Employees
(U.S. dollars per hour at current exchange rates)

Country	1966	1982	Percentage Increase 1966-82	1985[a]	Percentage Increase 1982-85
Japan	2.31	10.89	371	11.00	1
West Germany	4.70	13.27	182	10.00	–25
France	4.53	12.14	167	10.00	–18
United States	12.50	24.67	97	23.00	–7
United Kingdom	4.12	9.14	121	5.50	–40
South Korea	0.30	1.84	513	3.00	68
Brazil	na	4.00	na	na	na

[a]Approximate na - not available

Sources: U.S., Japan, West Germany, France and U.K.: Paine-Webber, Inc., *World Steel Dynamics, Steel Strategist No. 9*, February 1984; *World Steel Dynamics*, March 11, 1985 and March 11, 1986; South Korea – Korean Iron and Steel Federation, *Statistical Yearbook*, 1982, pp. 301-331; Brazil – Hans Mueller, "Trends in Steel Production and Trade," Annual Conference of Eastern Economic Association (Paper No. 92), New York, March 14-18, 1984, p. 41.

largest steel consumer, the United States is the primary marketing target of that worldwide over-capacity.

Wage and Productivity Challenges

The United States has historically had a high wage economy but has kept labor costs low by its outstanding productivity record. However, during the 1960 and 1970s, particularly in steel, its wage trends have accelerated while its productivity rise slowed. Both of those trends appear to have reversed during the past three years but in the meantime much harm has been done to U.S. competitiveness. Table 3 compares the hourly employment costs of world steelmakers. Included in addition to wages are all

Table 4
Labor Productivity for All Steel Industry Employees
(manhours per net ton at actual operating rates)

Country	1966	1982	Rate of Improvement 1966-82	1985	Rate of Improvement 1982-85
Japan	22.4	8.0	64	7.2	11
West Germany	22.5	11.1	51	9.5	14
France	23.8	10.8	51	na	na
United States	12.1	7.8	35	6.5	17
United Kingdom	25.8	13.4	48	na	na
South Korea	na	15.0	na	14.2[a]	6
Brazil	na	27.9	na	na	na

[a]1984 data

Sources: U.S., Japan, West Germany, France and U.K. – *World Steel Dynamics, Steel Strategist No. 9*, Paine Webber, Inc., February 1984; *World Steel Dynamics*, March 11, 1985; South Korea – *Korean Iron and Steel Federation, Statistical Yearbook, 1982*, pp. 301-331; 1985, pp. 306-337; Brazil – Hans Mueller (1984), p. 41.

fringe benefits and payroll taxes. Table 4 supplies productivity data for the same countries and years and Table 5 indicates the resulting labor costs per ton of steel. The primary reason for the slower productivity increase in the U.S. appears to have been failure to take advantage of some of the newer technologies for reasons discussed below. The 1982-85 turnaround does not indicate a change in investment policies and technological adaption but piecemeal though persistent attention to management practices and work rules. A saving factor in international competition has been that U.S. hourly employment costs have been rising at a slower pace than in competing countries, but the gap will take a substantial time to close.

Table 5
Unit Labor Costs in 1966 and 1982
(U.S. dollars per net ton)

Country	1966	1982	Percentage Increase
Japan	51.93	87.99	69
West Germany	105.67	147.04	39
France	107.59	132.53	23
United States	149.94	194.64	30
United Kingdom	106.16	122.42	15
South Korea	na	31.86	na
Brazil	na	54.96	na

Sources: U.S., Japan, West Germany, France and U.K. – *World Steel Dynamics, Steel Strategist No. 9*, February 1984; South Korea – Korean Iron and Steel Federation, *Statistical Yearbook, 1982*, pp. 301-331; Brazil – Hans Mueller (1984), p. 41.

A troublesome wage development was the jump that the wages of U.S. steelworkers took between 1975 and 1982 in comparison with the average of all manufacturing workers in the country, a phenomenon that the other nations did not experience (Table 6). Steelworkers in all nations receive higher wages than the average for manufacturing, primarily because of the inherent capital-intensiveness and oligopolistic nature of the industry. The special factor in the United States was the interaction between collective bargaining and imports following the Second World War.

Table 6
Ratio of Hourly Labor Costs for Production Workers in Iron and Steel Compared with Total Manufacturing Labor Costs, 1975, 1980, 1982
(avg. mfg. wage = 100 in each country)

Country	1975	1980	1982
United States	161	177	195
West Germany	115	112	111
France	128	119	125
United Kingdom	120	115	120
Japan	172	173	174
South Korea	109	107	105

Sources: U.S., Japan, West Germany, France and U.K. – *U.S. Bureau of Labor Statistics*; South Korea – Korean Iron and Steel Federation, *Statistical Yearbook, 1982*, pp. 301-331.

The U.S. steel industry was especially strike-prone following the war. Both the union and the company recognized the implication of the government's reluctance to see steel production stop. The union could demand higher wages than it might otherwise win, knowing government would pressure the companies to concede to get the plants back into production. Realizing that, the companies held back wage offers they might otherwise have made so as to have some "caving-in money" when the pressure was applied. A nationwide strike occurred at one-half of the contract openings from 1945 to 1959. In the latter year, the government did not intervene and the strike went for 116 days, changing the future expectations of both parties.[12]

However, the long strike changed customer expectations as well. Steel users were forced to search for and found alternative suppliers among nations whose steel industries were newly rebuilt from their wartime destruction. Seeing imports persistently rise as well as steel users laying in stockpiles in anticipation of strikes at each negotiation, the industry resolved to refurbish its image as a dependable supplier. In 1973, the coordinated bargaining team representing all of the major companies of the steel industry laid before the Steelworkers Union a dramatic offer: extraordinarily high wage increases and a generous cost of living allowance in return for a no-strike promise extending into future negotiations.[13]

That ended national strikes for the steel industry but it did not have the expected results for imports. It was that very winter that the oil producing export countries (OPEC) imposed their embargo and quadrupled the price of oil, repeating that action in 1979. Inflation exploded and the steel cost of living allowance responded. No solution was found in the 1977 and 1980 collective bargaining negotiations, with the results shown in Table 6. In 1983, the companies and the unions, in the midst of the lowest levels of production relative to capacity since the Great Depression, agreed upon an approximate 10 percent decrease in wages and benefits. The labor cost gap narrowed but was still immense.

Technology and Investment

As a capital intensive industry, the primary determinant of labor productivity in steel is the quantity and quality of equipment per worker. The four major technological developments in steelmaking in recent years have been the basic oxygen furnace, the electric furnace, the continuous caster and, just emerging, direct iron ore reduction. The basic oxygen furnace is capable of larger heats within dramatically shorter periods of time than the traditional open hearth furnace, with substantial savings in energy and wasted raw materials. The electric furnace melts scrap, bypassing the steelmaking functions of the coke ovens, blast furnace and open hearth. The continuous caster takes molten metal directly from the basic oxygen furnace or the electric furnace and prepares it for processing into various products without the traditional cooling and reheating of ingots. The combination of the electric furnace and the continuous caster comprises the mini-mill, so called not because of size but because it shortcuts the traditional processes of the basic integrated mills. The mini-mill turns scrap into low value products such as reinforcing bar, rods and wire with about one-third the man-hours per ton required in basic mills; using, for the most part, lower paid nonunion labor. Direct reduction turns iron ore, coke and limestone into steel without the coke oven and blast furnace stages. However, being an energy intensive process, the latter is most practical in a country such as Mexico with an abundance of cheap natural gas.

The United States has lagged in the introduction of all of these technologies except the electric furnace (Table 7), and that because of the mini-mill in which an edge exists because of abundant scrap supplies.

The slower pace of technological change in the U.S. steel industry begins with the fact that the U.S. industry grew rather than being destroyed during the Second World War. Every other steel-producing nation started over with new equipment after the war, either because its industry was destroyed or because it never had one. But beyond that, the U.S. industry as an oligopoly of a few large large firms felt little pressure to modernize until foreign competition began to be apparent in the 1960s.

But even then the U.S. industry was unwilling or unable to make the financial commitments necessary for modernization, the reason being the relatively low rate of return available from investment in steel. The U.S. industry is not less profitable than the steel industries of other nations; the profits of U.S. steelmakers have consistently been higher than those of our international competitors (Table 8). However, every steelmaking country except the United States

Table 7
Percentage of Crude Steel Produced by Various Processes

Country	Open Hearth 1967	Open Hearth 1982	Basic Oxygen 1967	Basic Oxygen 1982	Electric Furnace 1967	Electric Furnace 1982	Continuous Casting—1983
United States	55.6	8.2	32.6	60.8	11.6	31.1	30.7
Japan	14.6	0	67.2	73.4	18.3	26.6	86.3
West Germany	37.0	1.5	31.5	80.9	8.5	17.6	71.8
France	21.8	0.2	16.7	80.9	9.7	18.9	63.8
United Kingdom	57.1	0	27.8	65.9	14.3	34.1	46.6
Brazil	0	7.4	0	65.9	0	26.5	44.3
South Korea	36.3	0	0	74.8	63.7	25.2	56.6

Source: International Iron and Steel Institute, *Steel Statistical Yearbook 1984* (Brussels, 1984).

Table 8
Consolidated Return on Steel Industry Sales: Net Income/Sales (percent)

Country	1975	1976	1977	1978	1979	1980	1981	1982
U.S.	4.3	3.3	0.4	2.5	2.1	3.0	3.9	−6.8
Japan	0.6	0.9	0.6	1.8	3.3	2.9	1.9	1.5
West Germany	1.4	1.1	0.1	0.3	0.4	0.6	na	na
France	−15.9	−10.7	−23.5	−14.0	−10.1	−11.5	na	na
U.K.	−10.8	−3.1	−14.1	−9.4	−17.6	−22.6	na	na
Italy	−4.0	−5.9	−17.6	−13.4	−8.3	−20.4	na	na
Belgium	−7.9	−2.6	−13.9	−10.2	−2.5	−9.4	na	na
Canada	6.0	4.5	4.9	6.2	7.1	7.4	na	na
South Korea	na	na	na	na	na	na	2.6	4.5

Source: *World Steel Dynamics*, "Financial Analysis of International Steelmakers;" South Korea – Korean Iron and Steel Federation, *The Financial Structure in Korean Steel Industry*, Seoul, Korea, 1982, p. 10.

has a steel industry either owned or heavily influenced by the policies of its governments that produces regardless of profits. They also tend to function within societies in which relatively few individuals have the wealth to invest through stock markets. If not financed by government, they borrow from banks. The rate of return only has to be sufficient to meet debt service costs. Beyond what they can plow back from retained earnings, U.S. firms have to be able to pay dividends sufficient to be competitive in private capital markets. Even the use of retained earnings is limited by stockholder demands for a competitive return on investment; that, rather than a viable steel industry, is their primary interest. As David Roderick, Chairman of the Board of U.S. Steel put it, "We are not in business to make steel; we are in business to make money."[14]

It was that objective that led "big steel" to resolve to become "big oil." The U.S. Steel Corporation now gets 31 percent of its net revenues from steel production and 58 percent from oil and gas.[15] A mature, high wage industry of worldwide overcapacity is no place to look for high rates of return. Even in the best of times in recent years, integrated steel mills have returned only 3 to 9 percent on investment compared to the all-manufacturing average of 14 to 16 percent (Table 9). Only the minimills were able to command those rates of return and

Table 9
Comparative Return (Loss)
as a Percent of Equity

	Integrated Steel	Mini-mill	All Manufacturing
1972-1976	9.1	15.8	14.0
1977-1981	5.6	17.0	16.2
1982	(25.2)	0.8	11.0
1983	(16.5)	3.2	na

Sources: Congress of the United States, Congressional Budget Office, *The Effects of Import Quotas on the Steel Industry*, Washington, D.C., July 1984, p. 31, *Economic Report of the President*, February 1986, Tables 13-88.

only while protected by the umbrella of prices set by the higher costs of integrated mills. As steel prices tumbled under the pressures of worldwide recession and overcapacity during the early 1980s, even many mini-mills were undercut, and, with generally weaker financial bases, were forced to close.[16]

That does not mean there has been no investment. In fact, the U.S. industry has invested more in absolute terms in recent years than any nation but Japan and more per ton of capacity than any other nation (Table 10). But given the relative size of the two industries and the economies, U.S. investment would have been expected to far exceed that of Japan. A higher U.S. cost structure and the investment requirements of environmental protection in the United States may account for the higher per ton investment without greater productivity impact.

Exchange Rates and Subsidies

The final contributors to the waning U.S. steel competitiveness were: (1) the exchange rate disadvantages of an overvalued dollar; and (2) below cost sales of international competitors.

At the exchange rates existing in 1978 and 1979, U.S. production costs in 1984 would have been below those of any other alternative supplier except Japan (Table 11).[17] Even the cost differential in Japan's favor would not have been enough to offset transportation costs. Had the U.S. not experienced the inflation of 1979-82, its cost related to all competitors except South Korea would have been even more favorable. Exchange rates are now improving slowly, but the gap has been a wide one and will require considerable time to adjust, and will not close as long as the U.S. continues to run high government deficits requiring borrowing from abroad.

Table 10
Annual Investment Expenditure in Relation to Crude Steel Production in the Main Steel-Producing Countries
(Units: $ million; U.S. dollars per ton)

		1962	1965	1970	1972	1974	1976	1978	1980	1981	1982	1983
West Germany	$ mill.	418	312	627	593	581	701	445	722	763	717	597
	US $/ton	12.8	8.5	13.9	13.6	10.9	18.7	10.8	16.5	18.3	19.9	16.7
France	$ mill.	437	165	369	899	630	460	403	347	380	401	540
	US $/ton	25.3	8.6	15.5	37.4	23.3	19.8	17.6	15.0	17.9	21.8	30.7
U.K.	$ mill.	476	139	269	557	500	938	501	299	332	233	253
	US $/ton	22.9	5.1	9.7	22.0	22.3	42.1	24.7	26.6	19.0	17.0	16.9
Canada	$ mill.	106	151	175	209	403	442	383	487	698	490	165
	US $/ton	16.3	16.6	15.7	17.6	29.7	34.1	26.1	31.1	40.9	41.7	13.0
U.S.	$ mill.	911	1,823	2,000	1,164	2,115	3,400	2,538	3,400	3,365	4,219	3,235
	US $/ton	10.1	15.2	16.8	9.6	16.0	29.3	20.4	33.4	31.5	62.4	42.1
Japan	$ mill.	615	454	1,889	2,396	2,844	3,509	4,338	2,865	3,610	3,830	3,720
	US $/ton	20.8	11.0	20.2	24.7	24.3	32.7	47.5	25.7	35.4	38.5	38.3

Source: "Organization for Economic Cooperation and Development," *The Iron and Steel Industry*, various years.

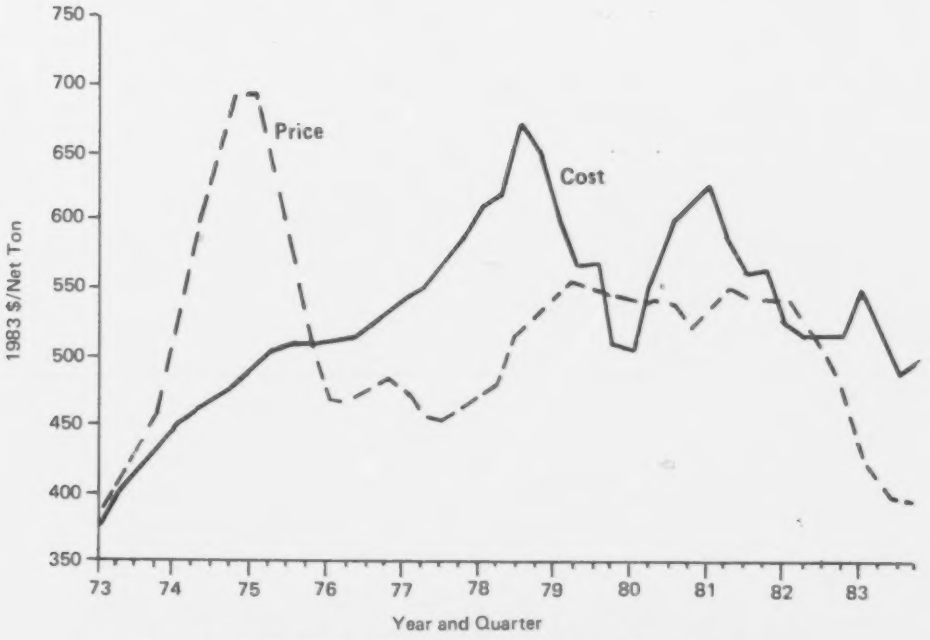
Table 11
Production Cost Consequences of
Exchange Rates and Inflation Rates
(cost per net ton at actual operating rates)

Country	At 1984 Exchange Rates	At 1978-79 Exchange Rates	Exchange Rate Distortion (percent)	Current Production Cost at Purchasing Price Parity[a]	Purchasing Price Distortion (percent)
U.S.	$478.06	$478.06	–	$478.06	–
Japan	447.66	454.05	1.4	543.99	14.7
West Germany	416.63	481.54	15.6	627.26	50.5
France	423.11	645.11	52.5	631.23	49.2
U.K.	397.33	489.52	23.2	520.17	30.9
South Korea	297.86	493.68	65.7	358.75	20.4

[a]At both exchange rate and price level relationships existing in 1978-79. See Reference 17 for calculation of purchasing price parity.

Source: *World Steel Dynamics, Steel Strategy No. 9*, February 1984, Paine-Webber, Inc. and authors' calculations.

Figure 1. Real Import Prices and Full Japanese Costs for Carbon Steel, 1973-83



Source: *Analysis of Injury to the Domestic Steel Industry Caused by Imports.* Report to International Trade Commission of Marshall Bartlett Inc., May 3, 1984.

However, eliminating the exchange rate problem, or even investing in more efficient technology, would not eliminate another threat to U.S. competitiveness. As noted, high proportions of the steel capacity of every major producer except the United States is owned or heavily regulated by its government. Figure 1 illustrates the extent to which Japan has been willing to subsidize its steel exports to keep its mills humming. Total European operating subsidies for the 1975-85 period have been estimated at $30 billion, even at present exchange rates, in addition to an estimated $34 billion in governmental capital investment.[18] Having even higher fixed costs than the U.S. industry, these foreign industries lose more if they cut back production than if they keep up output, as long as variable costs are covered. Yet the flip side of that is willingness of the Japanese and European taxpayer to subsidize the U.S. steel consumer, as well as steel consumers in other countries. Some notion of the trade-off between producer and consumer welfare can be gained from the Congressional Budget Office estimate, that while foreign competition cost the U.S. steel industry $2.4 billion in lost profits and the U.S. steelworkers $2.6 billion in lost wages between 1977 and 1983, the relatively mild voluntary restraint agreement (VRA) designed to hold foreign imports under 20 percent of total U.S. consumption is currently costing U.S. steel consumers over $6 billion per year in higher prices.[19]

Prospects for the United States Steel Industry

Despite this dreary recital, the prospects for the U.S. steel industry are not entirely gloomy.[20] Though it is little comfort to those already impacted, there is reason to think that most of the pain is in the past. Most of the marginal mills have been closed, and many of those remaining are being upgraded. Companies are taking stringent measures to reduce costs. Operating rates are rising with the growth of the economy and steel prices are firming. Breakup of the coordinated multi-employer bargaining pattern of the past should facilitate dealing with company and plant-level conditions, practices and problems, contributing to further cost cutting. Productivity improvements have been substantial if not spectacular. The pace of wage increase has slowed in the United States. Wage rates and labor costs are rising more rapidly in foreign countries. The cost gap between U.S. and foreign mills with transportation included, is not a large one (Table 12). However, U.S. mills must also transport their product to market and land transportation is more expensive than water transportation. The incursion of foreign competition is much greater near the coasts. The VRA system designed to keep steel imports below 20 percent of total U.S. consumption has only been able to keep it to 26 percent because of third nation buying and reselling in the U.S. However, imports would have

Table 12
Costs per Net Ton Shipped Second Quarter of 1984
(at actual operating rates)

	U.S.	Japan	West Germany	France	U.K.	South Korea	Brazil[a]
Labor Costs	$137.61	$95.98	$124.28	$126.74	$90.33	$31.86	$80.00
Raw Material Costs	301.69	255.33	242.62	221.18	255.33	224.28	160.00
Financial Costs	38.76	96.35	49.73	75.19	51.67	41.72	
Total	$478.06	$447.66	$416.63	$423.11	$397.33	$297.86	$240.00
Dec. 1983 entry costs into U.S. market (duty, freight, handling)		$ 74.61	$ 70.76	$ 70.76	$ 70.76	$ 74.61	na
Landed costs in U.S. before profit	$478.06	$522.27	$487.39	$493.87	$468.09	$372.47	na

[a]Data for 1982

Source: *World Steel Dynamics, Steel Strategist No. 9*, February 1984 — Paine-Webber, Inc., and authors' calculations; South Korea — Korea Iron and Steel Federation, *Statistical Yearbook*, 1984; Brazil — Hans Mueller.

been far higher without the restrictions (which, as noted, have been very expensive for the American consumers).

Slowly, the overvalued dollar is lessening its disadvantages and promises of reduced federal deficits will weaken it further. Only the U.S. has the scrap supplies to make the mini-mill a permanently viable option for steel production. A new development is proving to be a boon to some parts of the steel industry and a bane to others. Steelmaking is more labor intensive than steel finishing, making the "hot end" more vulnerable to low wage competition. Most of the expensive technological innovations have also come to that end. Firms with obsolete steelmaking facilities are upgrading their steel finishing capacity, often with the assistance of foreign capital investment, importing semifinished steel from low wage countries to be finished here for the U.S. market. Table 13 lists a few of the U.S. companies involved. The Voluntary Restraint Agreement holds importation of semi-finished products to 1.5 million tons per year until 1989, but dramatic expansion can be expected thereafter unless the VRA is extended.

U.S. steel consumption has not declined appreciably.[21] U.S. consumers use almost as much steel as ever but part of it arrives already encased in foreign made automobiles, etc., as well as in steel imports. However, in part because of government policies and in part because of the cost cutting efforts of U.S. management and labor, as well as the closing of marginal facilities, the projections are for U.S. steel production to recover from its low mid-1980s doldrums and then decline only slowly after 1990 (Table 14). Accelerated cost-cutting and productivity enhancement can improve that outlook to production stability or even slow increase.

But that does not imply employment recovery. Stability in output will be won at the cost of continued productivity improvements which mean fewer jobs per ton of steel. Industry employment has plunged from 609,500 in 1974 to 336,700 in 1984. The Bureau of Labor Statistics projected in 1983 when industry employment was 343,100, a rise to 435,000 in 1990 and 447,000 in 1995. That seems unlikely now with rising productivity and expectation of slow production decline after the completion of

Table 13
Major Semifinished Steel Importers
1985

National: (USWA)	Foreign slabs from Thyseen AG of West Germany for use at Ecorse, Michigan, and Granite City, Illinois. National is also importing foreign-produced coke.	McLouth: (USWA)	Importing 25,000 tons per month of slabs/bands - Canada (estimated).
		Armco: (USWA)	Has announced consideration of foreign semi-finished slabs for its Middletown, Ohio plant.
Republic: (USWA)	Foreign semi-finished as described above in its Ohio operations. Moreover, the Republic/LTV merger agreement with the Justice Department recognizes slab imports as appropriate for viable operations at Gadsden, Alabama.	Wheeling-Pitt: (USWA)	Publicly acknowledged that it was negotiating for Brazilian slabs in late February.
		Pinole Point: (Machinists Union)	Importing cold-rolled coils - source unknown.
J & L: (USWA)	Importing Canadian slabs.	Inland: (USWA)	Imported foreign coke in 1983 and 1984.
Sharon: (USWA)	Importing semi-finished slabs for sheet conversion. Is on 100% foreign semi-finished feed supplied by SIDMAR of Belgium for all finishing operations.	Lukens: (USWA)	Importing thousands of tons of semi-finished from Europe, the Far East, and Brazil.
Phoenix: (USWA)	Importing semi-finished slabs, believed to be Swedish.	California Steel: (Non-Union)	Apparently imported as many tons of semi-finished steel as all of the above combined.
Ford: (UAW)	Importing Canadian slabs.		

Source: *Geneva Bulletin*, Vol. XIX, No. 1, Geneva Works Employee Relations, Provo, Utah, January 1986, p. 6.

Table 14
Forecasted Steel Production by Region
(million tons)

Region	1984	1990	1995	2000	2005
Western Europe	156.8	139.2	130.3	120.0	108.2
North America	97.4	116.2	114.9	112.4	109.4
Latin America	33.4	45.0	57.7	73.6	93.2
Africa	9.6	13.3	15.2	17.1	19.0
Middle East	3.7	3.5	4.7	6.2	7.8
Far East	137.2	189.2	219.6	249.1	277.4
Oceania	6.5	7.8	8.2	8.6	8.9
Western World	444.6	514.2	550.9	587.0	623.9
Communist	263.8	314.2	347.3	379.6	410.8
Total World	708.4	828.6	898.2	966.6	1034.6

Note: Figures may not add exactly due to rounding.
Source: *World Steel Dynamics*, Paine-Webber Inc., October 18, 1985.

current recovery. The best that can be expected is a slow decline from 1985 levels of employment, perhaps at a pace which can be accommodated by attrition. However, a growing amount of that employment will be in mini-mills which now accounts for 20 percent of steel production and is expected to rise to one-third by the turn of the century. Basic steel employment is now at 203,000 and will do well to retain that level. Further productivity increases bringing average hours per ton industry-wide to Geneva-Pittsburg's 4.6 hours, and restraining the pace of wage increases until they return to their pre-1975, 161 percent of the average of all manufacturing, will be necessary to achieve even that.

Geneva's Past and Future Economic Impact

It is within that world and national context that Geneva's future must be assessed. This section will review the contributions of the Geneva Plant to the Utah economy, estimate the economic costs of its potential closure and assess the odds for its survival.

The Geneva Plant

It was the advent of Geneva that first changed the face of Utah County from primarily rural and agricultural to urban and industrial. In 1940 only 10.8 percent of Utah County's 12,240 employed people were working in manufacturing. By 1950, total employment in the county had doubled to 24,520, with 27.1 percent of them in manufacturing and with one out of five of the employed labor force working at Geneva Steel (Table 15).

Geneva's dominance of the new Utah County economy did not last long, however. The U.S. Steel proportion of the county's job had slipped to one of nine by 1970 and one out of 17 by 1980, even though U.S. Steel employment was lower in 1950 than in the latter two years. Then with the decline in Geneva employment, the U.S. Steel proportion had shrunk to one out of 30 jobs by 1984. Commensurate with trends in the state and nation, manufacturing jobs have steadily declined as a proportion of all employment in the county. Yet Geneva employment continued to decline as a proportion of manufacturing employment as well as of all employment in the county so that, whereas U.S. Steel provided two-thirds of manufacturing in jobs in 1970, it was the source of only two out of five of Utah County's manufacturing jobs by 1980. Thereafter, as Geneva employment declined rapidly, by 1984 U.S. Steel provided only one out of five manufacturing jobs in the county. As Table 16 illustrates, Geneva's employment appears more dominant than it is because there are so few other large private employers. Nevertheless, the large number of small employers diminishes the plant's relative importance in the total employment picture.

Geneva's contribution to Utah County incomes has followed a similar pattern but at a higher level. Geneva has an extraordinarily high wage structure in

Table 15
Utah County Employment Sources, 1950-84
(percent of total)

	Total Employment	Manufacturing	U.S. Steel as Percent of Total Employment	U.S. Steel as Percent of Manufacturing
1950	24,520	27.1	19	71
1960	31,580	24.1	15	62
1970	42,300	17.0	11	66
1980	76,374	15.8	6	42
1983	79,418	13.9	4	26
1984	84,245	14.6	3	22

Source: Utah Department of Employment Security, *Annual Report, Vol. III, Labor Market Information*, various years (approximated).

Table 16
Largest Utah County Employers

Name	1970	1975	1980	1985
Brigham Young University	7,900	9,700	11,500	11,900
Alpine School District	1,300	1,800	2,500	3,000
United States Steel	4,700	4,200	4,800	2,500
Utah Valley Hospital	700	1,100	1,600	1,600
Provo School District	900	1,000	1,300	1,500
Nebo School District	900	1,100	1,300	1,500
Signetics	1,000	400	1,600	1,300
American Fork Training School	600	800	900	1,100
Utah Technical College	200	400	600	800
Utah County	200	500	600	700
Provo City	400	500	600	700
Utah State Hospital	400	500	600	600
Wicat Systems	0	0	50	500
Orem City	100	200	300	400

Source: Utah Department of Employment Security, *Annual Report, Vol. III, Labor Market Information*, various years (approximated).

the Utah context. The average annual gross earnings of a full-time, full-year Geneva employee including all incentives and any overtime, is nearly $40,000 at present. That provides a monthly wage of about $3,300 compared to Utah County's 1984 average monthly nonagricultural wage of $1,175 and the average monthly manufacturing wage of $1,668. Of course, that comparison is distorted by the fact that practically all Geneva employees work full-time whereas many nonagricultural employees in other industries, including manufacturing, work only part-time. At any rate, though Geneva represented only 4 percent of Utah County employment in 1983, it accounted for 10 percent of nonagricultural wages and 5 percent of total personal income in the county (Table 17). These figures are down from 31 percent to 21 percent respectively in 1965, with probably even higher proportions in earlier years.

Table 17
Utah County Personal Income by Source, 1965-84

	Total Personal Income ($000)	Total Nonag. Wage ($000)	Total Mfg. Wage ($000)	Geneva Wage as Percent of Total: Personal Income	Nonag. Wages	Mfg. Wages
1965	$ 217,573	$ 143,156	$ 57,244	21	31	78
1970	320,889	204,514	73,446	16	24	68
1980	1,299,639	759,848	242,590	11	18	59
1983	1,588,000	864,180	207,318	5	10	41
1984	na	959,246	246,606	na	10	38

na – not available

Source: Utah Department of Employment Security, *Annual Report, Vol. III, Labor Market Information*, various years and authors' calculations.

Impact of Possible Closure – Income

Obviouly, closure of the Geneva Works would not have the devastating impact in 1986 (or 1989) that would have occurred in earlier years. Nevertheless, a loss of over 5 percent of a county's personal income cannot be faced with equanimity. For the families of the 2,200 current employees the effect would be devastating, just as it was for the larger number who have been laid off since 1979. No other employer including the Brigham Young University, the county's now largest employer, can approach Geneva's wage level. One of the great advantages to a community having such an employer is that substantial wages can be earned without the benefit of higher education. Few steelmaking skills are transferable. No employment is likely to be available in the county or the state offering anywhere near the wages to which the steelworkers and their families have become accustomed. Some have speculated over the years that the necessity of competing with the high-wage plant may have discouraged some lower-waged firms from locating in the county. There is no way of knowing whether that has occurred but the impact of Geneva's wage payments on the economy has undoubtedly far outweighed any such negative effect it may have had.

Of course, just as the whole county has profited from the Geneva payroll, the closing of Geneva would strike at the incomes of more than the plant's employees. All those whose incomes depend at least in part on the purchases made by U.S. Steel, its employees and their families would lose as well. An average of some 200 employees of contractors are generally at work somewhere in the plant in maintenance and construction activities. Geneva is a major customer of the state's public utilities, railroads and truck lines, and industrial suppliers such as those which produce refractory materials and oxygen. The company estimated in response to an information request from the Governor's Office that such purchases had averaged $150 million per year during the early 1980s.

Multiplier Effect – The concept that all of these expenditures have a multiplier effect is a familiar one. A dollar paid to a Geneva employee buys a gallon of gasoline from a service station operator who buys a loaf of bread from a grocer who ... and so on. But only the dollar coming from outside the local economy has that multiplying effect. There is no multiplier effect from a service station operator using the dollar with which he would have bought a loaf of bread to pay wages to one of his employees who then spends it at the grocery store. That process of "taking in each other's washing" can support a subsistence economy but not provide affluence. Of the largest Utah County employers shown in Table 16, only Brigham Young University, U.S. Steel, Signetics and Wicat Systems attract money from outside the local economy to pay wages within it. Other employers merely collect money from some local residents to pay wages to other local residents. U.S. Steel, therefore, is one of Utah County's few large multiplier firms.

No one knows what the size of that multiplier actually is but the smaller the geographical area involved the sooner the expenditure flows outside the boundaries and loses its local impact. Input-output studies by the Bureau of Economic and Business Research estimate the income multiplier for steel as 1.74 on a state-wide basis.[22] Because of the many leakages, the income multiplier in Utah County may be somewhat smaller than that. However, to use that figure, loss of $1 of Geneva wages would deprive the county and the state of $1.74 in total income. Because of Geneva's higher-than-average wages, loss of one job at Geneva would result in the loss of a total of about 2.47 jobs in the county and state.

Geneva's wages are paid primarily to residents of the county whereas most of its other expenditures probably have their greater impact on the state at large and the nation beyond. Had Geneva closed in 1981, the loss of $150 million in wage payments would have caused a total income loss of $261 million dollars or 21 percent of the county's and 2 percent of the state's total personal income. However, only an average of about one-third of the $150 million of other purchases would have ended up as income within the state and even less in the county. Loss of those purchases would have resulted in an additional $87 million total income loss, another 5 percent for the county but less than 1 percent for the state. But much of that loss has already occurred. Losing the 1985 $90 million Geneva wage payment would result in a total income decline of $157 million or approximately 10 percent of the county's and 1 percent of the state's total personal income. Other purchases would not have declined proportionately with employment. A cessation of those expenditures might result in an additional 5 percent income loss for the county and perhaps 0.5 percent for the state. In total then, closing Geneva in 1986 would cost Utah County about 15 percent of its total personal income compared to a little over 2 percent of the state's total.

The greater likelihood of gradual decline in employment with a 1989 closing adds another consideration. Anyone laid off now or in the future from Geneva will have vested pension rights. Assuming they do not leave the area, their future pension income will be an addition to the county's personal income and an offset against the wage loss. The longer the period of employment, the greater the number who will be able to move directly from employment to retirement and the shorter the period without income will be for the remainder.

Tax Impact – Another view of Geneva's financial impact can be gained from its position on the Utah County property tax rolls (Table 18). Whereas in 1960, the Geneva plant accounted for 30 percent of the county's assessed valuation and paid

Table 18
Assessed Valuation and Property Taxes
1960-1985

	Assessed Valuation			Property Taxes		
Year	Geneva	Total County	Percent of County	Geneva	Total County	Percent of Total Taxes Paid
1960	$32,395,738	$109,250,690	29.6	$1,646,497	$ 8,222,086	20.0
1965	32,140,915	125,144,315	25.6	1,983,038	10,921,833	18.1
1970	26,951,377	151,624,019	17.4	1,762,312	14,372,199	12.2
1975	na	234,053,375	na	na	17,970,118	na
1980	na	552,641,098	na	na	37,165,864	na
1981	38,628,966	637,974,053	6.0	2,163,872	39,745,505	5.4
1982	38,361,408	668,113,456	5.7	2,156,227	41,929,508	5.1
1983	42,674,539	755,149,511	5.6	2,528,058	48,502,106	5.2
1984	40,417,194	829,846,441	4.8	2,309,068	50,319,304	4.5
1985	36,040,015	869,271,669	4 1	1,834,862	60,514,692	3.0

Source: Utah County Treasurer's and Assessor's Offices, Provo, Utah.

Table 19
Largest Property Tax Contributors,
Utah County, 1971 and 1985

Company	1971	1985
U.S. Steel	$1,860,534	$1,834,863
Mountain Bell	532,616	1,515,707
Utah Power and Light Co.	532,880	1,368,805
Signetics Corporation		703,957
Mountain Fuel Supply Co.	305,906	338,123
D&RG Railroad	345,362	306,586
Union Pacific	79,421	–
University Mall Shopping Center	–	232,240
Pacific States Cast Iron	77,410	144,669
Intermountain Power Agency	–	140,938
Deseret Generation	–	122,146
Kennecott Copper	74,833	–

Source: Utah County Treasurer's Office, Provo, Utah.

20 percent of the property taxes in the county, those figures were 4 percent and 3 percent respectively in 1985. Table 19 shows Geneva's tax assessments compared to those of other large property taxpayers in 1971 and 1985. Not only would the cities and school districts of the county be deprived of that revenue, they would still have to provide at least as much if not more in public services, requiring an increase in the average per capita tax load. However, the proportionate loss and increased burden would be small.

Employment Impact

Translated into employment terms, the drop in Geneva empioyment from approximately 5,000 to 2,200 between 1979 and 1986 probably had a negative total employment impact of some 6,800 jobs. That would have been less than 1 percent of the state's total employment but 10 percent for the county. A total closure at the 1986 level would cost about 5,500 total jobs or .8 percent of the state's total and 8 percent for the county. Once again, the loss already accrued exceeds that which would occur from total closure.

Clearly, the Geneva plant has made a major contribution to the Utah economy over the years. The relative size of that contribution has been declining recently. A plant closing would be devastating for the 2,200 families now supported directly by Geneva but no more so than for the 2,800 who have lost their jobs at Geneva since 1980. The negative impact on the Utah County economy would be substantial but not overwhelming, and for the state as a whole it would be modest. Growth over the years in the economies of both the state and county coupled with the already substantial declines in Geneva employment have made what would once have been overwhelming an unpleasant blow, but not one which puts either economy in jeopardy. That argues for strenuous efforts to aid the adjustments of the families directly impacted but more modest ones to save the plant. If Geneva can be saved as a viable economic entity, every reasonable effort should be made to do so. But the alternative is not doomsday for the Utah County economy.

Prospects for Survival

U.S. Steel estimates that an investment of $1 billion would be required to bring the Geneva Plant to the level of world class competition. Even with that expenditure, it would still be necessary to ship Geneva's products 750 miles to any market large enough to absorb its output. That fact illustrates the major threat to Geneva's survival. The plant has quite different value in the eyes of its employees and Utah

County residents, on the one hand, and corporate officers and stockholders on the other. Primarily because of the distance to market, the company resisted making a bid on the plant initially and did so only in response to political pressure. Estimates that the intermountain market would have grown sufficiently within 25 years to absorb the plant's output was the persuasive argument which allayed that reluctance. Now after 40 years the proportion shipped to the West Coast is not appreciably different than it was at the beginning.

U.S. Steel claims to have put two-and-one-half times as much money into the Geneva and Pitt-Cal plants over the past ten years as they have taken out in net revenues. Critics argue that profits have been a substantial multiple of total investment. That debate cannot be settled without company release of internal data. Over one-third of the investment in recent years was in pollution control equipment. However, there has been continuous small scale modernization including state-of-the-art computerization. Cooperation between management and the employees combining technological improvements, greater work effort and relaxed work rules has halved manpower requirements for the Geneva-Pittsburg combination from 9.2 to 4.6 hours per ton over the past four years.

Management argues that the expenditure for basic oxygen furnaces and continuous casters was never economically justified and would not have helped. At present levels of productivity, Geneva employees are outproducing those plants with such innovations but without the freight rate disadvantage. The present open hearth facilities, it is argued, are more flexible because the open hearth furnaces can be shut down to the number needed to produce the demanded output. In fact, with furnace improvements which have occurred, production from one-half of the ten hearth furnaces can keep the finishing end of the plant fully occupied. Basic oxygen furnaces would have imposed all-or-nothing requirements. Kaiser Steel's Fontana, California plant, the major West Coast competitor of the Geneva-Pittsburg combination, did invest in basic oxygen furnaces and continuous casters and then, in face of low prices and foreign competition, could not meet its debt service costs and went bankrupt. Its successor, California Steel, a Brazilian, Japanese, Korean, U.S. co-venture, even now does not use those expensive steelmaking facilities but imports Brazilian semifinished steel which it processes in the older technological equipment at the finishing end of the mill.

U.S. Steel attempted to interest the Koreans in the Geneva plant but without avail.[23] An estimated two-thirds of the steel consumed on the West Coast is already of foreign origin. The Koreans are seeking further outlets for their own steel. They are investing in the $300 million modernization of the Pittsburg plant to make it a world class finishing facility. Job security will therefore be protected for 1,100 Pitt-Cal employees. From the corporate vantage point, that result is more attractive than further major investment in Geneva.

What Can Be Done?

There are no easy solutions to the Geneva issue. There would seem to be five possibilities for the plant:

1. Continue the Geneva-Pittsburg connection;
2. Develop alternative West Coast markets;
3. Shrink production to the size of the intermountain market;
4. Close earlier than 1989.
5. Operate until the Korean connection comes into play, then close, supposedly in 1989.

Alternative 1: To continue the familiar Geneva-Pittsburg partnership would require the U.S. Steel Corporation to, first, renege on its agreement with Pohang Steel and then either invest massively in Geneva and Pitt-Cal or continue the current competitive struggle, despite the freight rate disadvantage. In either case, the corporation would have to forego potential profit, though not necessarily operate at a loss. Such a reversal of its recently announced decision seems unlikely. An extension of the Voluntary Restraint Agreement or its equivalent could force cancellation of the Korean joint venture; but reportedly, the Corporation's current stance is that it would close both plants and abandon the Western market in that event.

Alternative 2: If the corporation is not willing to continue to operate the Geneva-Pittsburg combination, it is even less likely to attempt the second

alternative. Only the Pittsburg and Fontana plants on the entire West Coast are capable of finishing Geneva's semifinished product, and Fontana is apparently irrevocably committed to imported steel. Geneva would have to concentrate on finished product in competition with the 67 percent of West Coast steel consumption already coming from abroad. That could not be accomplished without major investments in Geneva's facilities to duplicate the cold-rolled sheets, galvanize and tinplate which Pitt-Cal currently processes from Geneva coil.

Whether U.S. Steel would be willing to sell the Geneva Works to another operator is unknown. It is entirely possible that retirement of that much capacity might appear more advantageous in the total corporate picture. At any rate, no potentially interested and financially viable buyer is apparent. Employee purchase and operation of the plant has been suggested. There is no reason the employees could not operate the plant, provided a source of financing was available. But an employee-owned plant would face the same dilemma as any owner: the inadequacy of the Mountain West market and the necessity to deliver finished steel on the West Coast at a cost competitive with the Korean-Pittsburg and Brazilian-Fontana combinations. The best prospect would be to buy both the Geneva and Pitt-Cal plants, displacing the Koreans and keeping the current portion of the West Coast market. That much funding and the cooperation of the Pitt-Cal employees would be required.

Without that investment, Geneva would be left to compete with the Pohang Steel Pitt-Cal combination. The Geneva employees along with local management have performed a near industrial miracle in cutting in half the labor requirement of each ton of steel. But it still has not been enough at current prices. Though it does cost $45 or so to deliver each ton of Geneva Steel to the West Coast, it costs the Koreans over $70 to do the same thing. But they start with a base of one-eighth the hourly employment costs. Can Geneva under any ownership bring its delivered price to the Korean West Coast level? Can it do so with the present facility or would massive reinvestment be necessary? If so, who would risk the money?

Alternative 3: This alternative is an economy-of-scale question. Geneva is rated at 2.5 million tons of steel per year. The company does not release production figures but the total 3,300 employees at Geneva and Pitt-Cal together at 4.6 hours per ton would produce 1,435,000 tons per year. That suggests that Geneva's market outside the Pittsburg relationship is no more than 430,000 tons per year. Could Geneva at least break even at that level of output? That answer would require data not currently available outside the company, but it does not appear likely. In fact, the company claims its current break-even point for the Geneva-Pittsburg combination to be 1.6 million tons per year.[24]

Alternative 4: Rumors recur that Geneva close without awaiting the 1989 end of VRA. However, to close Geneva before Korean steel is available would be to close Pitt-Cal as well. U.S. Steel has been shipping some continuous cast steel to Pitt-Cal from Texas and Indiana and will now buy a substantial part of that from Pohang Steel.[25] However, the VRA allows the Korean firm to ship in each year only the equivalent of one week of Geneva coil production. There is no other Western U.S. source for supporting the California plant with semifinished product. Unless the planned upgrading is best accomplished during shutdown, U.S. Steel's interest would appear to be served by continuing to use semi-finished Geneva products until the Korean alternative is available. The odds appear to be on continuance of Geneva to that point, though with probable gradual decline in total employment commensurate with productivity increases. At least those current employees not eliminated by attrition can continue their earnings, while planning for the painful adjustment which at this point appears inevitable.

Alternative 5: So what happens in 1989? An idle rusting steel mill is a blot on any landscape. The land can never in the foreseeable future return to its pre-1942 prime agricultural status. Utah County is not short of industrial sites. The Geneva property would have no alternative use until cleared of the steel facility. One final possibility therefore appears obvious – build on the site a mini-mill with electric furnaces and continuous casters and some combination of present and new finishing capacity, dismantle the plant and melt it as scrap, ending the plant's life in a cannibilization process which provides long-term and even permanent employment for a few hundred people.

Of the five scenarios, the latter seems most likely. But too little data is available and knowledge is too limited for judgments to be considered definitive. This is a first-cut economic examination. Informed

engineering and marketing expertise is necessary as well. It is time for an officially established, knowledgeable and at least modestly financed task force, empowered to obtain the necessary information, to clarify the alternatives and recommend that which appears most promising and the policies necessary to carry it out.

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Dr. ElRoy Nelson
1906 - 1986

MEMORIAL

Dr. ElRoy Nelson
Acting Director and Director of the Bureau of Economic and Business Research, 1947-1954.

With the death of Dr. ElRoy Nelson comes the close of a long and distinguished career as a Utah educator and business leader. Dr. Nelson, who died March 28, 1986, at age 80, was a former professor of economics at the University of Utah, and was the second director of the University's Bureau of Economic and Business Research.

Dr. Nelson received a PhD degree from New York University in 1935. He became director of the research bureau in 1949, having served during 1947 and 1948 as acting director in place of Dr. J. R. Mahoney, who was on leave working with the U.S. Legislative Reference Service in Washington, D.C.

Under Dr. Nelson's supervision, the Bureau's "Utah Economic and Business Review" was established as a monthly publication featuring current financial and economic data on the state. While at the Bureau, Professor Nelson did the research for and much of the writing of his comprehensive volume, *Utah's Economic Patterns*, which was published in 1956. In cooperation with Dr. Osmond L. Harline, then Bureau Director, the book was updated in 1964 with a volume entitled *"Utah's Changing Economic Patterns."*

Completed during Dr. Nelson's Bureau directorship were a number of Utah Consumer Price Surveys and other special studies relating to the economy of the state. He was also a participant in the First and Second Annual Intermountain Marketing and Sales Conferences held in 1953 and 1954.

Dr. Nelson left the Bureau of Economic and Business Research in January 1954, to become an economist for First Security Corporation, in which position he served until retirement a few years ago. He served for many years as a member of the Utah State Building Board, and was active in many other Utah governmental affairs.

As we recognize Dr. ElRoy Nelson's dedication to the State of Utah and its residents – his many years of service as an educator and leader in the business community – quoting the dedication from *Utah's Economic Patterns* seems most appropriate:

> PEOPLE – People are America's best product. From them come ideas, the daring, the perseverance and the fortitude which make our country great. Their bie births, their deaths, their marriages, and their lives make our history. Their work, their decisions, their barter and their creating make our economy.

Utah Business Statistics

UTAH DATA	Oct. 1985	Oct. 1984	% Change from Year Ago	12 Month Average 1985	12 Month Average 1984	12 Month Average % Chg.
Total Personal Income (seasonally adjusted)(mil. of dol.)(qtly.)	na	na	na	na	na	na
New Corporations (no.)	392	445	-11.7	441.1	481.7	-8.4
New Cars, Truck and Motorhome Sales (no.)	na	6,617	na	na	6,433.5	na
Agriculture						
Average Prices Recorded by Farmers (dol.):						
Beef Steers and Heifers (cwt)(thous.)	56.20	56.80	-1.1	56.3	59.2	-5.0
Lambs (cwt)	66.40	59.40	11.8	62.9	55.8	12.7
Milk Wholesale (cwt)	11.90	13.50	-11.9	12.4	12.9	-3.8
Alfalfa Hay, Baled (per ton)(mid-month price)	67.00	72.00	-6.9	72.8	80.2	-9.1
Cattle Slaughtered (live weight)(thous. of lbs.)	3,701.6	3,694.2	0.2	3,208.9	2,834.3	13.2
Construction						
Total Construction[1] (thous. of dol.):	196,793	139,355	41.2	134,221.1	142,496.7	-5.8
Residential	61,632	48,686	26.6	61,950.3	66,670.3	-7.1
Nonresidential	58,326	70,326	-17.1	40,474.8	41,479.8	-2.4
Public Works and Utilities	76,835	19,990	284.4	31,787.8	32,292.2	-1.6
Total Permit Construction[2](thous. of dol.):	200,179.9	160,833.1	24.5	119,134.3	122,159.3	-2.5
Residential	125,345.1	70,531.6	77.7	61,779.9	63,546.0	-2.8
Nonresidential	58,597.1	73,327.7	-20.1	42,562.5	44,463.8	-4.3
Additions, Alterations and Repairs	16,237.7	16,973.8	-4.3	14,291.8	14,149.4	1.0
New Dwelling Units (no.)	2,748	1,803	52.4	1,369.1	1,487.6	-8.0
Employment						
Civilian Labor Force (thous.)	778.8[r]	731.6	6.5	745.1	714.4	4.3
Total Employed Persons	737.4[r]	687.9	7.2	698.3	666.4	4.8
Unemployed Persons	41.4[r]	43.7	-5.3	46.8	48.0	-2.6
Percent Total Labor Force	5.3[r]	6.0	-11.7	6.3	6.7	-6.7
Employees on Nonagricultural Payrolls (thous. of jobs):	635.0[r]	616.5	3.0	621.5	595.8	4.3
Manufacturing	96.1[r]	96.1	0.0	96.0	93.1	3.1
Mining	9.1[r]	11.2	-18.8	10.3	13.2	-22.1
Contract Construction	39.3[r]	40.3	-2.5	36.5	33.9	7.6
Transportation, Communication and Utilities	36.6[r]	36.5	0.3	36.6	36.5	0.2
Wholesale Trade	36.0[r]	35.4	1.7	35.7	34.6	3.2
Retail Trade	114.0[r]	108.7	4.9	111.4	104.8	6.2
Finance, Insurance and Real Estate	31.2[r]	30.2	3.3	30.9	29.5	4.8
Services[3]	133.7[r]	124.9	7.0	129.2	119.5	8.1
Federal Government	39.6[r]	37.4	5.9	38.8	37.3	4.1
State Government[4]	36.3[r]	36.4	-0.3	35.4	35.0	1.2
Local Government[4]	63.3[r]	59.4	6.6	60.9	58.4	4.2
Average Weekly Hours:						
Manufacturing	40.4[r]	39.9	1.3	40.2	40.2	-0.1
Mining	45.8[r]	44.7	2.5	44.4	42.9	3.5
Contract Construction	37.7[r]	38.7	-2.6	38.0	37.8	0.5
Wholesale Trade	34.6[r]	36.1	-4.2	35.8	37.2	-3.7
Retail Trade	28.2[r]	28.6	-1.4	28.6	29.0	-1.5
Amount of Unemployment Compensation (thous. of dol.)	5,712.6[r]	5,180.8	10.3	6,923.9	5,725.2	20.9
Finance						
Savings, Savings and Loan Association (mil. of dol.)	2,366.1	2,146.8	10.2	2,355.4	2,006.1	17.4
Tax Collections by the State of Utah (thous. of dol.):						
Total Tax Collections	68,650.5	42,771.2	60.5	124,520.3	110,655.1	12.5
Sales and Use Tax	15,182.7	10,548.8	43.9	45,402.4	38,821.3	17.0
Motor Fuel Tax	8,806.6	6,384.2	37.9	7,902.0	6,198.5	27.5
Individual Income Tax	17,697.2	13,011.1	36.0	37,258.4	33,790.8	10.3
Corporation Franchise Tax	10,931.9	3,027.5	261.1	5,259.1	3,664.6	43.5
Production						
Net Electric Power Utilized[5](mil. of kwh)	na	1,123.8	na	na	1,148.5	na
Crude Oil to Refineries (thous. of bbls.)	na	4,482.3	na	na	4,219.7	na
Crude Oil (thous. of bbls.)	na	3,187.4	na	na	2,876.5	na
Natural Gas (mil. of cu. ft.)	na	16,568.6	na	na	12,163.1	na
Coal (thous. short tons)	na	1,222	na	na	1,054.8	na
Copper (thous. metric tons) (last issue containing copper data)						
Tourism/Travel						
Air Passengers (total no. on and off)(S.L. Int'l. Airport)	659,333	603,118	9.3	729,678.0	612,145.4	19.2
Highway Traffic Count Across State Lines	33,558	31,262	7.3	34,590.7	33,842.8	2.2
Transient Room Taxes (thous. of dol.)	210.2	25.0	740.8	423.4	360.4	17.5
Visits, State, Nat'l. Parks, Monuments (thous.)	na	711.4	na	na	907.4	na
Utilities						
Telephone Lines in Service (Mt. Bell)(residential)	466,731	455,888	2.4	459,970.0	450,935.8	2.0
Telephone Lines in Service (Mt. Bell)(nonresidential)	165,465	165,853	-0.2	165,398.8	161,142.3	2.6
Electric Customers (residential)	na	427,406	na	na	422,783.6	na
Electric Customers (commercial)	na	41,513	na	na	41,045.0	na
Natural Gas Customers (residential & commercial)	420,541	408,455	3.0	421,098.8	409,644.7	2.8
Natural Gas Customers (industrial)	573	526	8.9	550.6	526.1	4.7

Utah Business Statistics

	Oct. 1985	Oct. 1984	% Change from Year Ago	12 Month Average 1985	12 Month Average 1984	% Chg.
Davis County						
Non-Ag. Employment (thous.)	52.0[f]	50.5	3.0	50.9	48.5	5.1
Unemployment Rate	3.5[r]	3.6	-2.8	4.1	5.0	-17.8
Auth. Permit Construction (thous. of dol.)	26,322.3	7,609.1	245.9	13,105.6	11,124.2	17.8
New Dwelling Units (no.)	151	90	67.8	163.6	174.7	-6.3
Postal Receipts[3] (thous. of dol.)	335.3	287.8	16.5	329.1	324.2	1.5
Electric Customers (residential)	32,949	31,125	5.9	33,302.3	30,576.1	8.9
Electric Customers (commercial)	2,442	2,354	3.7	2,473.2	2,313.0	6.9
Natural Gas Customers (residential)	44,131	42,191	4.6	43,848.6	42,062.2	4.2
Natural Gas Customers (industrial)	50	45	11.1	48.9	44.9	8.9
Telephone Lines in Service (Mt. Bell)(residential)	50,605	38,355	31.9	42,651.5	37,745.7	13.0
Telephone Lines in Service (Mt. Bell)(nonresidential)	9,758	7,267	34.3	8,169.3	6,816.0	19.9
Salt Lake County						
Non-Ag. Employment (thous.)	329.3[f]	321.3	2.5	323.3	311.0	4.0
Unemployment Rate	5.4[r]	5.9	-8.5	6.0	6.3	-4.7
Auth. Permit Construction (thous. of dol.)	59,576.0	111,410.4	-46.5	57,007.2	61,353.4	-7.1
New Dwelling Units (no.)	362	1,287	-71.9	621.6	864.6	-28.1
Postal Receipts[3] (thous. of dol.)	6,956.5	6,210.8	12.0	6,749.2	6,510.8	3.7
Electric Customers (residential)	na	217,441	na	na	213,531.0	na
Electric Customers (commercial)	na	17,941	na	na	17,562.2	na
Natural Gas Customers (residential)	203,729	197,273	3.3	204,081.0	197,577.0	3.3
Natural Gas Customers (industrial)	260	237	9.7	252.4	238.4	5.9
Telephone Lines in Service (Mt. Bell)(residential)	219,152	213,113	2.8	216,009.7	211,305.2	2.2
Telephone Lines in Service (Mt. Bell)(nonresidential)	106,634	109,360	-2.5	107,953.8	106,375.7	1.5
Utah County						
Non-Ag. Employment (thous.)	74.3[f]	72.2	2.9	70.5	67.5	4.4
Unemployment Rate	5.5[r]	6.2	-11.3	6.8	7.1	-3.2
Auth. Permit Construction (thous. of dol.)	11,111.5	11,793.4	-5.8	10,501.5	13,456.0	-22.0
New Dwelling Units (no.)	59	75	-21.3	80.2	113.7	-29.5
Postal Receipts[3] (thous. of dol.)	948.0	752.8	25.9	868.9	805.0	7.9
Electric Customers (residential)	na	46,286	na	na	47,080.4	na
Electric Customers (commercial)	na	5,383	na	na	5,504.2	na
Natural Gas Customers (residential)	58,383	57,126	2.2	58,466.9	57,125.8	2.3
Natural Gas Customers (industrial)	70	67	4.5	68.9	65.3	5.5
Telephone Lines in Service (Mt. Bell)(residential)	62,636	61,852	1.3	61,039.6	60,443.3	1.0
Telephone Lines in Service (Mt. Bell)(nonresidential)	15,088	14,787	2.0	14,715.0	14,149.7	4.0
Weber County						
Non-Ag. Employment (thous.)	57.2[f]	54.4	5.1	56.3	52.7	6.9
Unemployment Rate	4.4[r]	6.2	-29.0	6.1	7.4	-17.4
Auth. Permit Construction (thous. of dol.)	16,435.7	8,340.4	97.1	8,928.9	11,008.9	-18.9
New Dwelling Units (no.)	318	76	318.4	89.3	72.4	23.4
Postal Receipts[3] (thous. of dol.)	563.2	733.8	-23.2	551.7	575.6	-4.2
Electric Customers (residential)	50,715	50,107	1.2	50,540.7	49,940.2	1.2
Electric Customers (commercial)	4,619	4,515	2.3	4,598.8	4,462.6	3.1
Natural Gas Customers (residential)	46,827	45,897	2.0	46,886.7	46,077.9	1.8
Natural Gas Customers (industrial)	87	76	14.5	79.5	76.5	3.9
Telephone Lines in Service (Mt. Bell)(residential)	45,144	44,534	1.4	44,912.8	44,461.7	1.0
Telephone Lines in Service (Mt. Bell)(nonresidential)	10,503	10,198	3.0	10,330.3	10,145.8	1.8

Sources:
Personal Income: Bureau of Economic Analysis, U.S. Department of Commerce
New Corporations: Utah Secretary of State
New Cars and Truck Sales: Utah State Tax Commission, Economic and Statistical Unit
Agriculture: U.S. Department of Agriculture, Agriculture, Utah: Utah Crop and Livestock Reporting Service (U.S. Department of Agriculture)
Construction Data: F.W. Dodge and Utah Construction Report
Employment Data: Utah Department of Employment Security
Savings, Savings and Loan Associations: Utah Savings and Loan Institutions
Tax Collections: Utah State Tax Commission
Net Electric Power Utilized: Cooperating Utah power companies
Crude Oil: Area oil refineries
Natural Gas: Utah Division of Oil, Gas, and Mining
Coal: Department of Energy
Air Passengers: Salt Lake International Airport, Statistics Service
Highway Traffic Count: Utah Department of Transportation, Travel Analysis Unit
Visits to State and National Parks and Monuments: U.S. Forest Service, Utah State Parks and Recreation Department
Utilities Data: Cooperating Utah utility companies
Postal Receipts: Postmasters in Davis, Salt Lake, Utah, and Weber Counties

r - revised
f - final
na - not available

Footnotes:
[1] Obtained from F.W. Dodge Statistics
[2] Obtained from Utah Construction Report
[3] Includes services by nonprofit and religious institutions
[4] Includes public schools and colleges institutions
[5] Postal receipts are reported every four weeks. Sales report for one month during each year includes total sales of two four-week periods. In 1985, this double-reporting occurred in the month of August.

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NATIONAL DATA

	Oct. 1985	Oct. 1984	% Change From Year Ago	12 Month Average 1985	12 Month Average 1984	% Chg.
U.S. Gross National Product[1] (seasonally adjusted)(bil.)(qtly.)	4,061.5	3,852.5	5.4	3,954.3	3,721.8	6.2
Total Personal Income[1] (seasonally adjusted)(bil. of dol.)	3,330.0	3,167.2	5.1	3,265.0	3,070.6	6.3
Industrial Production Indexes (seasonally adjusted)(1977=100)	124.4	122.7	1.4	124.1	120.4	3.0
Total Bus. Expend. for New Plants & Equip. (bil.)(qtly.)	389.0	367.2	5.9	380.7	346.6	9.9
Index of Leading Indicators (1967=100)	171.2	164.2	4.3	167.8	165.5	1.3
Price Indexes						
Consumer Price Indexes (not seasonally adjusted)(1967=100):	325.5	315.3	3.2	320.3	309.1	3.6
CPI-U (All Urban Consumers) All Items	302.5	296.6	2.0	300.7	293.3	2.5
CPI-U (All Urban Consumers) Food & Beverages	354.4	341.2	3.9	347.5	334.2	4.0
CPI-U (All Urban Consumers) Housing	320.9	315.5	1.7	318.7	310.1	2.8
CPI-U (All Urban Consumers) Transportation	410.5	385.5	6.5	398.8	375.8	6.1
CPI-U (All Urban Consumers) Medical Care	427.1	426.7	0.1	425.6	423.3	0.5
CPI-U (All Urban Consumers) Energy	294.8	291.5	1.1	293.0	290.3	0.9
Producer Price Index (not seasonally adjusted)(1967=100):	113.0	109.6	3.1	111.1	107.4	3.5
Producer Price Index, All Finished Goods						
GNP Price Deflator[1] (1982=100)(qtly.)						
Employment (seasonally adjusted):						
Civilian Labor Force (mil.)	116.2	114.0	1.9	115.2	113.2	1.8
Total Employed Persons (mil.)	107.9	105.6	2.2	106.9	104.5	2.3
Unemployment Rate	7.1	7.3	-2.7	7.2	7.7	-6.1
Construction:						
Total Construction (mil. of dol.)	21,145.8	18,413.3	14.8	18,514.4	17,451.6	6.1
Residential	9,598.3	8,493.7	13.0	8,540.7	8,527.0	0.2
Nonresidential	8,486.8	7,357.7	15.3	6,618.8	6,018.5	10.0
Non-Building	3,060.6	2,561.9	19.5	3,354.9	2,906.1	15.4
New Dwelling Units (no.)	158,237	144,706	9.4	140,371.8	150,625.2	-6.8
Interest Rates:						
Short Term (3-month Treasury Bill rate)	7.17	9.97	-28.1	7.7	9.6	-19.9
Long Term (30-year Treasury Bond yields)	10.56	11.66	-9.4	11.00	12.0	-8.5
Prime Rates Charged by Banks on Short-term Business Loans (ave.)	9.50	12.58	-24.5	10.3	12.0	-14.4
Mortgage Rates (new homes)	10.64	12.27	-13.3	11.4	11.8	-3.6

^{p}Preliminary ^{r}Revised na - Not available ^{a}Anticipated ^{ra}Revised Anticipated ^{e}Expected ^{f}Forecasted

FOOTNOTES:

[1]The U.S. Gross National Product, Total Personal Income, and the GNP Price Deflator have been revised to reflect a comprehensive (benchmark) revision; incorporation of new and revised source data; changes in definitions and classifications; and statistical changes, which include improved estimation procedures and a shift in the base year for appropriate series. Further information concerning these revisions can be obtained from the U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Wealth Division, Business Conditions Digest, December 1985, p. iii.

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